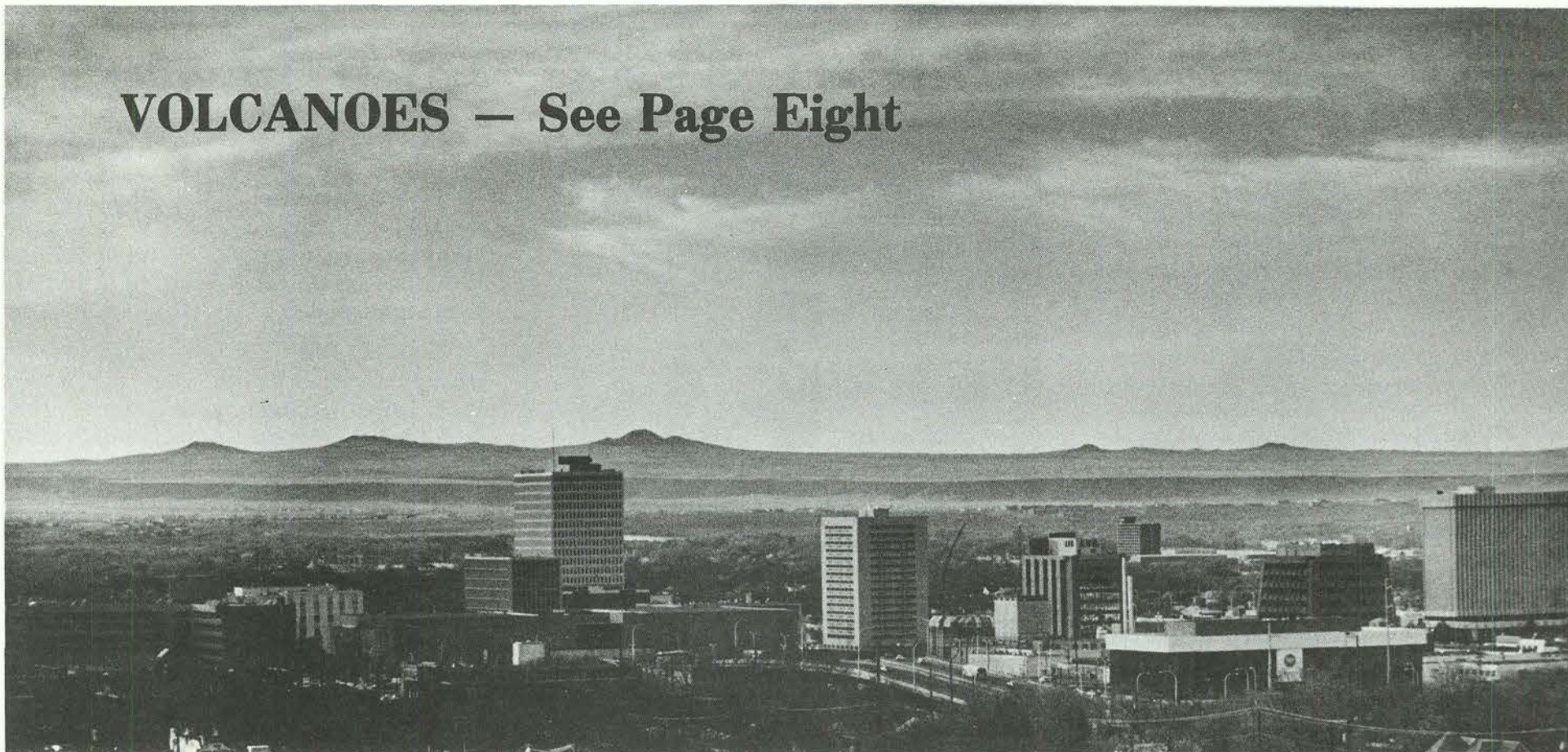


VOLCANOES — See Page Eight



LAB NEWS

VOL. 28, NO. 24

NOVEMBER 26, 1976

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

New Image-Storing Ceramic Developed

A new method of storing black and white images in PLZT ceramics which eliminates the need for photoconductive films has been developed at Sandia.

Devices using the new technique have several potential uses, including generation of high density images — documents, photographs, etc. — from signals transmitted by telephone or radio.

PLZT, developed at Sandia in 1970, is a transparent lead lanthanum zirconate titanate ceramic which has optical properties that can be controlled by applying voltages to thin plates of the material.

The new PLZT device, which uses a recently-discovered photoferroelectric effect (PFE), is related to another PLZT device — the Cerampic — developed at Sandia in 1972.

Like the PFE device, the Cerampic produces high-resolution, high-contrast images in thin, flat plates of PLZT, sandwiched between two transparent electrodes. However, the Cerampic also requires the use of a transparent photoconductive layer on one surface in order to form an image within the plate.

Such layers, composed of cadmium sulphide or zinc-cadmium sulphide, have proved extremely difficult to deposit uniformly, with the result that the Cerampic has not yet been used commercially in image storage.

The PFE image storage device is much simpler than the Cerampic; prototypes



IMAGE RESOLUTION of new PFE device is checked by inventors Paul Peery (5112) and Cecil Land (5133). The new method of storing images in PLZT ceramics eliminates the need for layers of photoconductive film on ceramic.

consist of polished PLZT plates, 0.2 to 0.3 millimetres thick and 2 to 5 centimetres in diameter, sandwiched between transparent indium-tin oxide (ITO) electrodes, sputter-deposited on the opposing surfaces of the plates.

When voltage is applied to the electrodes and near-ultraviolet (UV) light is shone through the image on a photographic negative and onto the plate, a positive image of the negative forms in the ceramic. The image can be transformed from positive to negative by switching the polarization of the ceramic from positive to negative remanence. The images can be viewed directly or projected through Schlieren optics.

Images can also be formed by scanning the plate with a UV light source, perhaps a laser, using remotely-transmitted signals to construct images from discrete points, or dots, having different values of gray.

Images stored in the prototype devices have a maximum resolution of 30 to 40 line pairs per millimetre and a maximum contrast of about 20 dB (100 to 1) — approximately the same contrast and resolution as the Cerampic.

The PFE device, like the Cerampic, produces a non-volatile image, which retains its maximum contrast and resolution after the applied voltage is removed. Either total or partial erasure of the image

[Continued on Page Two]

New Gas Flow Valve Patented

Precision, control and repeatability over a wide range of flow rates are the features of a new variable gas leak rate valve invented by Errol EerNisse (5133) and Gary Peterson (5111). ERDA was awarded a patent for the device recently.

Key to the new device is utilization of the piezoelectric effect where application of an electric field causes mechanical deformation in a piezoelectric ceramic. A sleeve of PZT ceramic, poled in the radial direction, is fitted around a stainless steel rod. The path for the flow of gas includes a portion of the cylindrical interface area between the poled ceramic sleeve and the stainless steel center rod. By application of the appropriate polarity of voltage between the center rod and the outer surface electrode of the ceramic sleeve, the inside diameter of the sleeve is increased, which allows gas to flow. The flow rate may be precisely and smoothly controlled from a few molecules per second to many magnitudes greater.

The new valve does not degrade from mechanical deformation as in the case of some conventional mechanical valves or require high temperatures and currents



NEW GAS FLOW VALVE using piezoelectric ceramic sleeve is displayed by inventors Errol EerNisse (5133) and Gary Peterson (5111).

with their associated problems as in conventional thermal valves.

The new device is useful in vacuum systems and in ion beam and other accelerator devices, where precisely controlled entry of small amounts of gas is required.

Continued From Page One

New Ceramic Developed

can be achieved by uniformly illuminating the area to be erased with UV light and simultaneously reversing the applied field so that the ceramic is switched to its initial polarization state.

The speed with which the image can be stored or erased has not yet been investigated, although the inventors of the device believe that such speeds would likely be in the range of 10 to 30 milliseconds. Inventors of the new device are Cecil Land, of Sandia's Solid State Device Physics Division 5133, and Paul Percy, of the Ion Implantation Physics Division 5112.

"We feel that the elimination of the photoconductive film from the PFE device removes a major barrier which has prevented wide application of PLZT image-storing technology," says Land.

"We plan further research to investigate switching speeds of the device, to learn if contrast can be improved, which seems probable, and to determine if ion implantation or diffusion of impurities into surface layers of the ceramic will alter energy band gaps of the material so that switching can be accomplished with visible light illumination."

Events Calendar

Nov. 27, 28 — Fera de los Artesanos sponsored by the Albuquerque Junior Woman's Club, 10120 Lomas NE, Sat. 10-10, Sun. 10-6, 50¢.

Nov. 27, 28 — Albuquerque Dance Theatre in Concert, Popejoy Hall, 277-3747.

Nov. 27, Dec. 3, 7 — Chaparrals home games, 255-7581.

Dec. 2 — "Canada," Don Cooper's travel-adventure film, Popejoy Hall, 7:30 p.m.

Dec. 4, 5 — Concert by the New Mexico Symphony Orchestra, Mirian Fried, violin soloist, Popejoy Hall, 265-3689.

Dec. 6 — UNM Orchestra Concert, Popejoy Hall, 8:15 p.m.

Dec. 7 — Buckminster Fuller, Popejoy Hall, 8 p.m.

Dec. 8 — "Chopin Lives," piano recital by Robert Guralnik, Popejoy Hall, 277-3747.

Continuing — "TV or Not TV," Barn Dinner Theatre, 281-3338.

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LAB NEWS
NOVEMBER 26, 1976



LAB NEWS

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An Equal Opportunity Employer

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Bill Laskar does picture work
so does Russ Smith

&
Lorena Schneider reports on Livermore



GETTING to the base of things, concrete trucks line up for a 14-hour pour for the foundation of the 5 MW Solar Thermal Test Facility — the "Power Tower." The concrete tower will rise 200 feet above the Coyote Canyon mesa. Several hundred heliostats will focus solar radiation on receivers located on top of tower.

Supervisory Appointments

Harry Saxton to manager of Composites, Ceramics and Materials Properties Department 5840, effective Nov. 1.

Joining Sandia/Livermore in March 1971, Harry studied the mechanical behavior of materials, first in the Metallurgy and Electroplating Division and then in the Material Characterization Division. In April 1974, he was promoted to supervisor of the latter division, his most recent position. Previously, he was a systems analyst with the Center of Naval Analysis in Washington, D.C.

Harry received MS and PhD degrees in material science from Stanford University in 1962 and 1969, respectively. His PhD work was completed under a National Science Foundation grant. A member of the American Society for Metals, Harry spends much of his leisure time skiing, flying, hiking, and camping. He and his wife Vicki have two children, a girl and a boy.

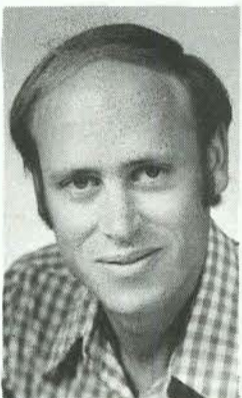


* * *

John Benapfl to supervisor of Second Shift Computer Operations Section 8323-2, effective Oct. 1.

Joining Sandia in Sept. 1965, John was a messenger in the mail distribution center. In Apr. 1966 he transferred to the computer organization where he worked as a computer tape librarian and data processing clerk, a computer operator, and lead operator. He was promoted to computer operations coordinator in June 1975.

John has completed most of the requirements toward an AA degree in data



LIVERMORE NEWS

VOL. 28, NO. 24

LIVERMORE LABORATORIES

NOVEMBER 26, 1976

Sandians Participate in Black Science Conference

Roger Tilley (8166), Rocky Bridges and Larry Watkins (both 8159) recently participated in a three-day Western Regional Black Engineering and Science Conference in Oakland. Sponsored by the Northern California Council of Black Professional Engineers, the conference aimed at increasing minority community awareness of opportunities in technological fields. Students and parents viewed various scientific exhibits and demonstrations and talked with technical professionals. The Sandia engineers presented a laser holography display and described its applications.

Authors

Rand German (8312) and Z.A. Munir (YC/Davis), "Identification of the Initial-Stage Sintering Mechanism Using Aligned Wires," JOURNAL OF MATERIALS SCIENCE, Vol. II, p. 71.

Jim Shelby (8334), "Pressure Dependence of Helium and Neon Solubility in Vitreous Silica," JOURNAL OF APPLIED PHYSICS, Vol. 47, No. 1, pp. 135-39.

Pete Mattern (8334), "Induced Infrared Absorption in H₂-Containing Vitreous Silica," BULLETIN AMERICAN PHYSICAL SOCIETY, Vol. 21, No. 226.

Rand German (8312) and Z.A. Munir (UC/Davis), "Sintering by Simultaneous Independent Mechanisms," INTERNATIONAL JOURNAL OF POWDER METALLURGY TECHNOLOGY, Vol. 12, p. 37.

processing and business administration at Chabot College. His favorite leisure time activities are hiking and basketball.

John, his wife Kathryn and their three-and-a-half year-old daughter live on Verona Avenue in Livermore.

Retiring



Anne French (8323)

Speakers

Carl Hiller (8321), "Energy Savings in Vapor Compression Refrigeration and Heating Devices," ERDA Technical Opportunities for Energy Conservation and Appliances Conference, May 11, Boston, Mass.

Jim Shelby (8334), "Helium Migration in Lithium Borosilicate, Aluminosilicate, and Aluminoborate Glasses," American Ceramic Society 78th Annual Meeting, May 4, Cincinnati, O.

Rob Rinne (8321), "Analysis and Comparison of Transportation Security Systems," Conference on Transportation for the Nuclear Industry sponsored by Atomic Industrial Forum, May 25-28, Minneapolis, Minn.

Cliff Selvage (8180), "Overview of Solar Central Receiver Project," San Ramon-Amador Valley Exchange Club meeting, May 20, Pleasanton, Calif.

Bob Gallagher (8333), "Nonequilibrium Effects in Free Jet Expansions," Seminar, Department of Mechanical Engineering, University of California at Davis, May 25, Davis, Calif.

Glen Otey (8362) and S.D. Rosenberg (Aerojet), "Performance of Discrete Injection Transpiration Cooled Nostips in Rain Erosion Environments," and Glen Otey, "High-Beta Reentry Vehicle Recovery," AIAA Strategic Sciences Conference, June 2-4, San Diego, Calif.

Carl Melius (8341), Invited Seminars: "Chemisorption of Hydrogen on Transition Metals," Mound Laboratory, June 10, Miamisburg, O.; Battelle Memorial Institute, June 11, Columbus, O.; and Northwestern University, June 14, Evanston, Ill.

Bill Wilson (8341), Invited Seminar: "Theory of the Behavior of Helium in Metals," Max-Planck Institute fur Plasmaphysik, June 29, Garching, W. Germany.

Congratulations

Mr. and Mrs. Mike Milanowski (8334), a son, Jeffrey Peter, Oct. 3.

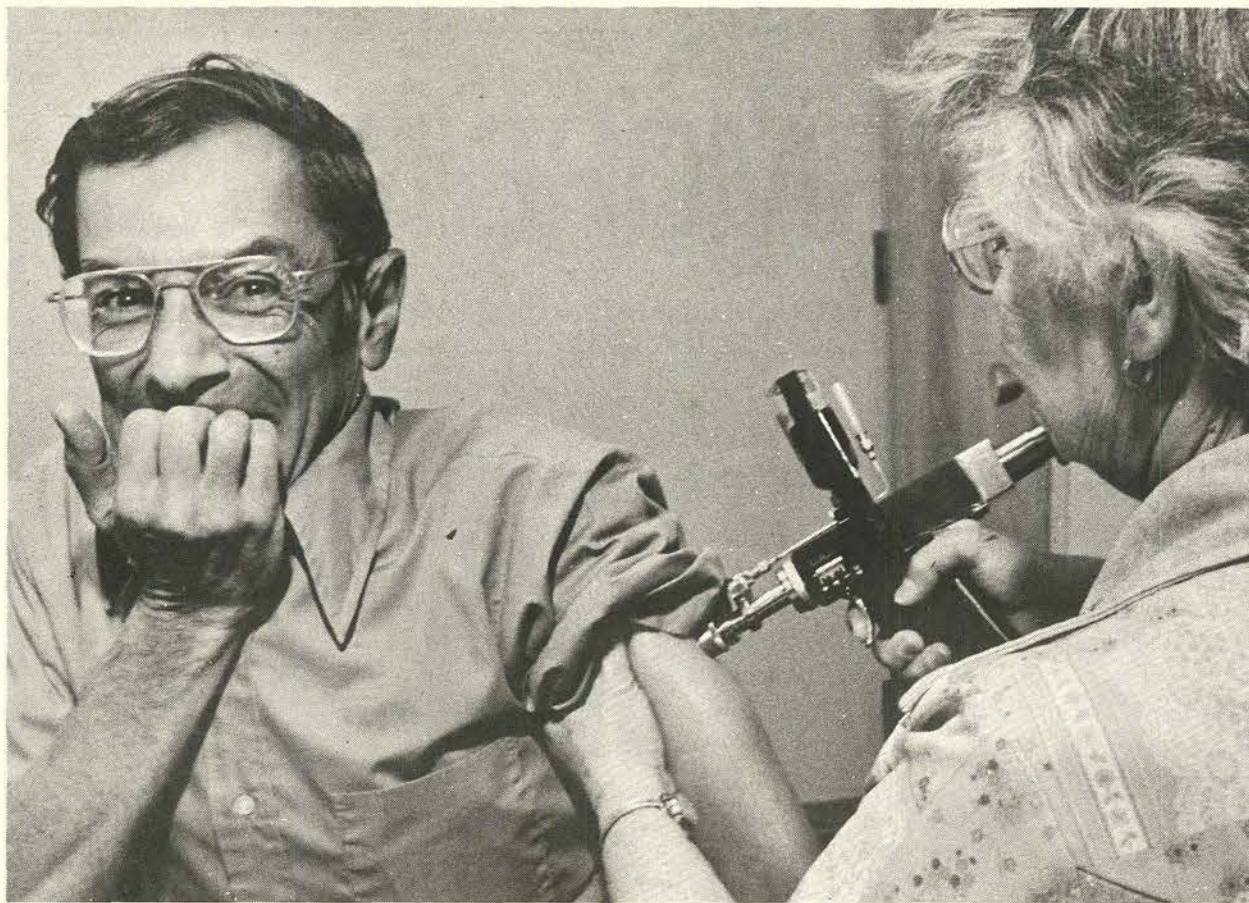
Mr. and Mrs. Rob Rinne (8321), a daughter, Leanne Dorene, Oct. 21.

Mr. and Mrs. Howard Manipus (Susan, 8214), a son, William Howard, Oct. 21.

Mr. and Mrs. Ron Amaral (8185), twin daughters, Rita Jannett and Lydia Mary, Oct. 30.



FIRST PUBLIC DEMONSTRATION of Harvey Pouliot's (8116) variable-displacement automobile engine was staged recently during a press conference at SLL. Here Harvey answers questions posed by newspaper and TV reporters.



A FLU SHOT SHOT — LAB NEWS photographer Bill Laskar assumed the approved attitude for his swine flu shot. He was one of about 4200 Sandians inoculated by Medical during the current drive. Nurse Eileen Kuruzovich (3322) pulls the air gun trigger.

Authors

D.W. Larson (1283) and R. Viskanta (Purdue Univ.), "Transient Combined Laminar Free Convection and Radiation in a Rectangular Enclosure," Vol. 78, p. 65, JOURNAL OF FLUID MECHANICS.

A.D. Swain (1222), "Shortcuts in Human Reliability Analysis," chapter in *Generic Techniques in Systems Reliability Assessment*, a NATO Advanced Study Institutes Series, published by Noordhoff - Leyden - 1976.

I.J. Fritz (5132), "Anomalous Elastic Properties of InBi at High Pressure," Vol. 20, No. 4, SOLID STATE COMMUNICATIONS.

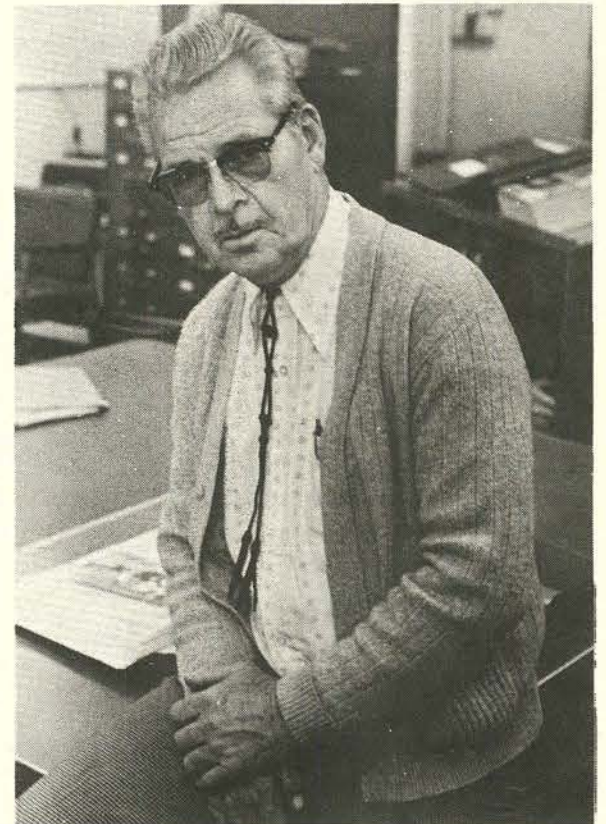
T.J. Headley (5822), "Influence of Heat-Treatment and Solute Content on Repeated Precipitation at Dislocations in Al-Cu Alloys," Vol. 11, No. 10, JOURNAL OF MATERIALS SCIENCE.

J.P. Quintenz (5241) and D.G. Dudley (Univ. of Arizona), "Slots in a Parallel Plate Waveguide," Vol. 11, No. 8-9, RADIO SCIENCE.

J.C. Swearingen (5847) and R.J. Eagan (5846), "Mechanical Properties of Molybdenum-Sealing Glass-Ceramics," Vol. 11, No. 10, JOURNAL OF MATERIALS SCIENCE.

A.C. Switendek (5151), "Influence of the Electronic Structure on the Titanium-Vanadium-Hydrogen Phase Diagram," Vol. 49, No. 1-2, JOURNAL OF THE LESS-COMMON METALS.

Retiring



Jerald Johnson (3414)

Take Note

The Sandia District of the Boy Scouts of America recently honored Paul Montoya (1283) with an Award of Merit. The award recognizes Paul's association with scouting since 1936, and his work with the District Advancement Committee.

* * *

The Sandia Laboratory Federal Credit Union will observe the same holiday schedule as Sandia Labs during December. The Credit Union will be closed Dec. 27 through 31.

* * *

The Albuquerque Chapter of the Laser Institute of America will hold its inaugural meeting at 8:15 p.m., Dec. 2, at the Coronado Club. A social hour will precede the meeting. Everet Beckner, director of Physical Research 5200, will speak on "An Overview of the ERDA Inertial Confinement Program."

All persons having an interest in some aspect of laser technology are invited to attend. Membership forms will be available for those who wish to affiliate with the local chapter of LIA. For more information, contact Eric Jones (5214).

* * *

Cecil Land (5133) received the Distinguished Science Award of the New Mexico Academy of Sciences recently. The award was presented during the group's fall meeting at New Mexico State University. Cecil was honored for his pioneering work in optoferroelectric devices, a new class of devices based on PLZT ceramic materials. Cecil showed that the optical polarization and transmission properties of ferroceramics can be controlled by electrical fields, thus enabling a diversity of practical devices.

The New Mexico Section of the American Society of Mechanical Engineers will meet Tuesday, Dec. 7, to hear Harold Agnew, Director of the Los Alamos Scientific Laboratory, present an overview of "Advanced Energy Technologies." The meeting will be at the KAFB Officers Club East starting at 6 p.m. with a social hour and Mexican buffet. For reservations call Fred Norwood (5166), 4-3973, or Don Cox (5422), 4-6753.

* * *

Pete Richards (5132) will present "Correlated Hopping in Fast-Ion Conductors" at the 5100 Seminar Dec. 1. On Dec. 7, Mike Butler and Dave Ginley (both 5154) will present "Solar Energy Conversion by Photoelectrolysis of Water." The seminar meets in Bldg. 806, Rm. 201 at 3:15 p.m.

Fun & Games

Sandia Runners — If you run around the ¼-mile track near the gym, you'll be dismayed that it's 31 feet short. Retiree Jim Hook measured it with a wheel; Jim advised running a few feet out from the edge if you're fastidious about such matters.

* * *

Bowling — Marv Daniel (4362) and Helen Davidson (1300) won the first Sandia Scotch Doubles Tournament held this year. Vic Berniklau (ERDA) and his wife Mary won second place. Thirty-six couples participated.

Monthly high score winners for September were: scratch — Delores Schumpert (ERDA) and Leo Bressan (9532); handicap — Marge Weitzel (1130) and Al Maes (4232).



Benifo Padilla (9713)

OUR ALCOHOLISM PROGRAM

Where Are We Now?

Sandia's alcoholism program has helped or is helping some 165 Sandians deal with their drinking problems. It's helping to remove the stigma that often surrounds alcoholism. And the program now is offering help both to family members who may be alcoholics and to employees and family members who are experiencing problems resulting from a close association with an alcoholic. That's the gist of a "where are we now?" interview with Jim Kelly (3321), administrator of the program.

The program began in 1972 with 19 alcoholics. Now it's up to 165, most of them rehabilitated and again working at full capacity. Ten or eleven have in fact been promoted. Many of these now help in the program as resource people. Thirty-five are now off-roll, but only two were actually terminated; in each case the cause was poor job performance resulting from reluctance to accept or respond to treatment. Others have retired or terminated of their own accord or, in a couple of cases, transferred to better jobs outside Sandia.

Which leads to a second observation about the program — the stigma often associated with alcoholism is much less marked today. "And that's great," says Jim. "It means that people have learned that alcoholism is an illness, is treatable, is not humiliating, and is found at all social, economic, and intellectual levels. In today's climate," Jim explains, "it's easier for a person in the early stages of

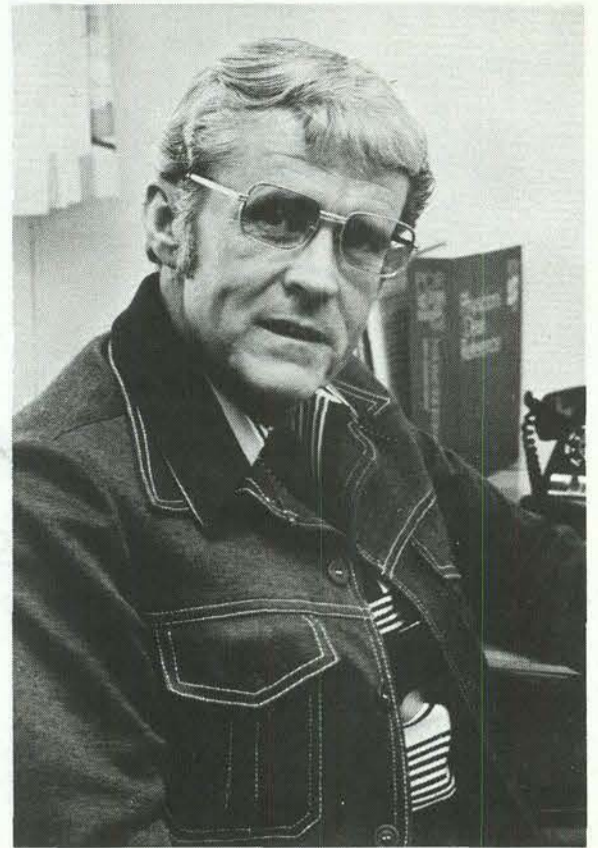
alcoholism to come see me before the problem becomes major."

About a third of Jim's clients are volunteers; another third are referred by the patient's spouse, doctor, union official, or close friend; another third are sent by supervisors. "Ironically," says Jim, "educational efforts have led a few supervisors to become amateur diagnosticians and counselors. They advise the employee, protect him, manipulate his environment. Then the employee doesn't respond, goes on a binge and doesn't show up for three days, and the supervisor feels betrayed and demands immediate punishment.

"There is a middle road," Jim points out. "For the supervisor, it means taking positive steps — like getting me involved — early. This may not be easy. It often means taking a hard line with the employee."

Support and cooperation from the Unions has been a big factor. "We see eye to eye on the problem," says Jim. "We both recognize that a person's life is at stake, and our goal is rehabilitation."

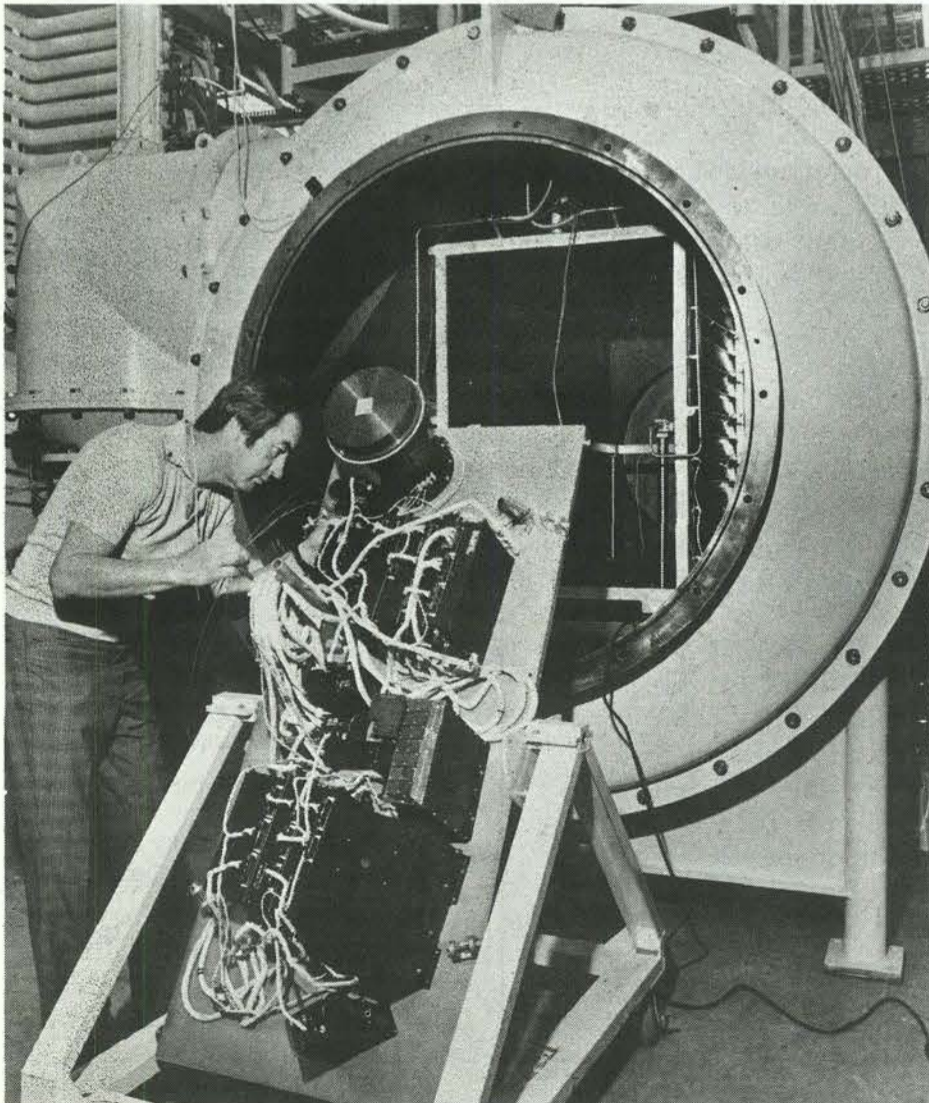
New directions for the program? "Help, not only for the employee but for family members as well whether the problem is alcoholism or it stems from close association with an alcoholic; people closely associated with the alcoholic may become as sick as the alcoholic." To provide help, Marybelle Manzanares now doubles as Jim's secretary and as an advisor to those who seek help. These clients already exceed 100.



Jim Kelly (3321)

The Sandia program maintains contact with treatment facilities around the country and with three major outside programs: AA for the alcoholic, Alanon for the spouse, Alateen for the children. It has been a model for many others in industries large and small. Jim currently serves as a consultant and helps other firms begin programs. He also works closely with Joe Darginis (8214), coordinator of Livermore's alcoholism program.

"Hey!" Jim concludes, "if you have to drink to be social, you're not a social drinker. Come see me if you'd like to discuss that one. Or call, even at home — anytime. The numbers are 4-4154 and 298-6035."



THERMAL VACUUM CHAMBER FACILITY in Bldg. 880 provides Space Systems Department 1240 with rapid access and real-time data for performance testing of sensors, logic circuits and other electronic packages destined for satellite applications. Ken Pilkington (1247) is responsible for the chambers and



operation. Test systems are connected directly to an EMR 6135 computer which provides real-time readout. High altitude environments in excess of 300,000 metres (1.7×10^{-5} pascals) and thermal environments from -62°C to 50°C are provided. Ken checks data with Don Gorsline (1242), right.



LOYT LATHROP visits with Sharla, who is seven years old and a victim of cerebral palsy. Loyt made this special wheelchair desk that enables her to participate in classroom activities.



JOHN GUSTAFSON admires tiny Chris's work. Chris is six. John designed and built this desk so that Chris can get into and out of his chair while using his tripod walker.

RETIRED SANDIANS

Loyt & John Have The Answer

Loyt Lathrop, retired Sandia, hasn't been troubled with a problem that often confronts retirees — something to do during those hours formerly spent on the job. Loyt's problem was just the opposite, and he solved it by asking for help from John Gustafson, also a retired Sandian and former co-worker.

Loyt and John volunteer their time and skill in a program for the physically impaired at Mark Twain School. The men, both of them skilled cabinetmakers, design and custom build furniture and equipment to fit the special needs of the 26 children in the program. They also modify existing furniture to provide children with proper writing surfaces. Some of their projects: wheelchair tables, foot rests, adaptive table tops, dressing tables, shelves.

Loyt has done this for several years, both at Mark Twain School and the Rehabilitation Center. Currently he is working with

the school nurse to design and build special lockers for the children. John recently completed wheelchair tables for older children, afflicted with cerebral palsy, who attend classes at Madison Junior High School. The work is done at shops in their homes. The Elks provide the materials used in making the furniture under their cerebral palsy program.

Loyt and John are familiar figures to the children and receive a delighted welcome when they visit the classrooms. John felt that these kids couldn't always relate to conventional toys, so he made a doll-size wooden wheelchair. "The children love it," says Claudia Pacini, the program's head teacher and speech pathologist. "We at Mark Twain are especially thankful to Loyt and John," she says, "for all that they do for our children, not only in material things but in the special relationship they have developed with them."

You & LAB NEWS

A call the other day made us do some wondering. The caller, who worked with a weapons project, wanted to submit an article about his work to LAB NEWS, and he was concerned about format, length, photos, approvals, etc.

When we told him that we do all that, he was considerably relieved.

His question prompts us to remind Sandians how material gets into the paper. It's through a combination of our scratching and digging for newsworthy items, plus receiving an occasional lead from one of you out there. And we'd like more of the latter.

If you're working on an interesting project, particularly in the weapons area, we'd like to hear about it. Check it out first with the concerned supervisor, then give us a call. If we agree that it has LAB NEWS

possibilities, we'll take it from there. When we write it up we'll get the necessary approvals (generally through the concerned director).

Besides work-related stories, LAB NEWS covers the interesting non-work activities of Sandians — "Joe Raises Pit Vipers" or "Mary Smith Plays Lead Kazoo in Symphony" or "Employee Scales Everest in Bikini." For this type of story we are especially dependent upon people volunteering the information, either about themselves or a co-worker.

Modesty. Occasionally we encounter it in Sandia subjects who protest that what they've done isn't all that newsworthy. It's a charming personality trait, but don't let modesty stand between you and LAB NEWS. We promise not to tell anyone that you called us.

The LAB NEWS editor is on 4-1053.

Speakers

R.A. Detry (2641), "Evolution of the Scientific Computer Center at Sandia Albuquerque," Computer Science Colloquium, Purdue University, Oct. 20, West Lafayette, Ind.

J.E. Schirber (5150), "Pressure-Induced Electron Transitions in Metals," Iowa State University Seminar, Oct. 20, Ames.

E.K. Beauchamp (5846), "Glass-Ceramics — A Review," N.M. Chapter SAMPE meeting, Oct. 20, Albuquerque.

R.L. Fox and R.R. Eaton (both 5261), "Computer Simulation of Disparate Mass Flows"; R.R. Eaton and D.E. Larson (1333), "A Simple Accurate Method for Determining Center of Pressure for High Fineness Ratio Bodies"; D.W. Sasser (5741), "A System Dynamics Model of National Energy Usage"; P. Yarrington, R.K. Byers (both 5166), and P.P. Sturbis (1284), "Earth Penetration and Penetrator Response Calculations"; F.G. Blotner (5260), "Finite-Difference Solution of Two-Dimensional Slender Channel Flows"; J.E. Boers (2354) and R.J. Walko (2352), "Computer Simulation of Ion Beam Optics Utilizing Self-Consistent Computations to Match Space-Charge Limited Emission to Experimentally Determined Plasma Ion Current Densities"; T.M. Gerlach (5831), "Chemical Thermodynamics Investigations of Magmatic Environments"; J.Q. Searcy (2515), "Geometrical Shock Focusing and Flying Plate Detonator Design"; B.T. Preas and B.W. Lindsay (both 2142), "Automatic Circuit and Design Rule Analysis of IC Masks"; R.K. Byers (5166), "Approximate Technique for Prediction of Terradynamic Soil Penetration"; J.R. Tillerson and M.M. Madsen (both 5162), "Room Sizing Studies for a Waste Isolation Pilot Plant"; P. Yarrington and R.K. Byers (both 5166), "High Velocity Soil Penetration Calculations"; R.R. Boade (5167), D.E. Munson and K.W. Schuler (both 5163), "Modeling of the Dynamic Stress Response of Al₂O₃ - Epoxy Mixtures"; L.W. Chapman (5741), "Effectiveness Evaluation of Alternative Fixed-Site Physical Protection Systems"; G.R. Case (2142), "SALOGS, Version 4, Digital Logic Simulator"; H.S. Lauson and R.K. Byers (both 5166), "CAPMOD - An Interactive Parameter Fitting Program for the SLA Soil-cap and Rock-cap Material Response Models"; W.R. Davey (5166), "Surface Burst Energy Partitioning"; B.L. Hulme (5122), "Pathfinding Algorithms Applied to Safeguards Studies"; P.L. Stanton (5131), "Analysis of the Behavior of Electrically Exploded Foils"; T.J. Tucker (5131), "Codes SWL and BWL: Finite Element Models of Compressed Magnetic Field Current Generators"; B.M. Marder (2642), "Neutron Generator Tube Design";

S.L. Thompson (5166) and J.R. Freeman (5241), "Two-Dimensional Compressed Magnetic Field Genera-

tor Calculations"; D.B. Saylor (5162), "6600 Output on a Color TV"; D.H. Habing (2116) and D.A. Branscombe (2135), "The Computer's Role in the Design and Development of the DCU 201 Weapon Controller"; L.A. Doyal (2142), "Computer Control and Data Processing in the Semiconductor Development Lab"; T.B. Linnerooth (2141), "Distributed Computer Network of Semiconductor Processing and Testing"; R.J. Lawrence (5162), "A Computational Model of the Coupled Dynamic Electromechanical Response of Piezoelectric Materials"; R.J. Lawrence (5162), "A Computational Model for the Dynamic Response of Porous Materials with Strength"; W.T. Brown (5162), "Computer Studies of the C-4 Endtip Detonation Transfer System"; M.E. Kipp (5162), "Numerical Integration of a Spall-Damage Viscoplastic Constitutive Model in a One-Dimensional Wave Propagation Code"; D.P. Peterson (9624), "Automatic Routing of Printed Wiring Boards Using Interactive Graphics"; R.L. Young (2644), "DISSPLA - A High Level Machine Independent Plotting Language," CUBE '76 Symposium, Oct. 26-28, Albuquerque.

R.J. Lawrence (5162), "A Computational Model for the Coupled Dynamic Electromechanical Response of Piezoelectric Materials," 47th Shock and Vibration Symposium, Oct. 19-21, Albuquerque.

J.G. Kelly (5423) and K.T. Stalker (2541), "Coded Aperture Imaging Methods for Fuel Motion Measurement," ANS/ENS Fast Reactor Safety and Related Physics Conference, Oct. 5, Chicago.

B.L. Butler (5844), "Applications of Solar Energy in the Home," graduate and faculty seminar, Oct. 13, NMIMT.

R.E. Cuthrell (5834) and L.K. Jones (5821), "Surface Contaminant Characterization Using Potential-Current Curves," BKC, Oct. 13.

R.E. Luna, H.W. Church and L.S. Nelson (all 5443), "Combustion and Smoke Formation Following Exposure of Actinide Metals," Western States Section/The Combustion Institute 1976 Fall Meeting, Oct. 18, La Jolla, Calif.

A.G. Beattie (9352), "Report on the AEWG Round Robin on Frequency Analysis," Acoustic Emission Working Group meeting, Oct. 18-20, Williamsburg, Va.

R.J. Chaffin (2125), "A Theoretical Explanation and Cure for Transient Ionizing Radiation Burnout in Microwave Power Transistor Amplifiers"; E.F. Hartman (4312), "Protection of Integrated Circuits from Radiation Induced Cable Currents"; C.W. Gwyn (2142), "Custom CMOS LSI Circuit Design Using Computer Aids"; J.N. Sweet (2151) and D.M. Schroeder (2542), "Electron Beam Fabrication of Prototype 100 Bit 2.6 μm Magnetic Bubble Shift Register Buffer Memories," 1976 Government Microcircuit Applications Conference, Nov. 9-11, Lake Buena Vista, Fla.

SANDIA RETIREMENT PLAN ANNUAL REPORT

Each year, Sandia is furnished with financial and actuarial reports on the operation of the Sandia Retirement Income Plan. Following is a summary of the highlights of these reports:

	(\$ in Thousands)	
Fund Balance 12/31/74		\$214,318
Add:		
Contributions - Employer	\$12,315	
Employee	2,335	14,650
Investment Earnings ⁽¹⁾		31,178
Sub-Total		\$260,146
Subtract:		
Annuity Payments		3,833
Return of Contributions for Deceased or Terminated Employees		371
Administrative Expenses and Premium Taxes		206
Fund Balance 12/31/75		\$255,736

(1) Includes realized and unrealized capital gains and losses and common stock dividends.



THE ALBUQUERQUE ASSOCIATION for Children with Learning Disabilities liked this poster designed by Tillie Pierce so well that they had it reproduced for this huge billboard.

ARTIST TILLIE PIERCE

Works for Perfection, Fights for Rights

A number of years ago, Tillie Pierce of Technical Art Division 3155 chose watercolor as her medium. That decision was made following graduation from Southwest Texas State College and many hours of advanced graduate work at UNM.

"The courses at UNM were interesting," Tillie says, "covering all the different theories and techniques in the various painting mediums. However, on my own, I continued to work with watercolor and finally decided that what I was doing and the way in which I was doing it was what I wanted. Since then, I've worked to perfect my own method."

Critical and commercial success of Tillie's leisure-time painting reinforces her decision. Her work combines strength and subtlety — bold design with a strong ambience of mood and color. Her work sells well at galleries and at arts and crafts fairs.

Tillie's watercolors are mostly landscapes or portraits. She does little abstract work. She also enjoys drawing and works with oils only when she wants to do something huge. Her forte is transparent watercolor — working without the use of white or black paint. In a transparent watercolor, the whites are produced by controlling the flow of colors surrounding the area of the white paper to be left untouched.

Before beginning a painting, Tillie spends a lot of time just thinking about what she is going to do. "Watercolor is an intimate type of medium — you have to really live with your ideas a while before you commit them to paper; a critical mistake cannot be corrected."

Tillie is secretary of the local chapter of Artists Equity, a national professional organization whose primary objective is to change or establish laws relating to artistic work. This is carried out by a lobby group in Washington. Activities include obtaining the legal right to copyright artistic work, and changing IRS rules which allow an artist to claim deductions of only the frame and paper costs of a donated painting, rather than the appraised value. (A person who buys a painting and later donates it to a charity can claim the entire



TILLIE PIERCE (3155) paints portraits on commission and sometimes just because she wants to paint a particular subject. In this case, Tillie says she and Katrina Person (3223) struck a chord with one another, resulting in this portrait of Katrina.

purchase price as a deduction.)

"The recent change in IRS rules that no longer allows the artist to claim deductions for having a studio in his home was a setback to all working artists," Tillie says. "A long-time project of Artists Equity has been the attempt to overhaul inheritance tax laws. For example, a married couple (one of them an artist) living in a community property state: if the husband is the artist and his wife should die, he would have to pay inheritance tax on the appraised value of his wife's half of his own paintings. These things just don't seem fair and we're working hard to correct them."

She was recently elected vice president of the New Mexico Watercolor Society, and serves as program chairman. "We have an active, educational type of organization," she says, "open to anyone — from the novice to the professional and to those who just want to learn about watercolors. This is a terrific way to overcome one of the barriers to exhibiting. For most of us, it's hard to exhibit our own work, especially for the first time, because there's usually a shyness on the part of the artist. The combination of workshops featuring national and international artists, local shows, tutoring and critiques is a total kind of learning process."

OUR TOWN

We Missed the Big Show

No other city in the country has five major extinct volcanoes in its backyard. And Albuquerque now owns all five of them. Ranging along the city's western skyline, they're only four miles west of the University of Albuquerque. Nearby, yet many people don't even notice them, dominated as they are by Mt. Taylor 50 miles beyond them. Fewer still have climbed them, though the view of the city from the 6033-foot altitude of Vulcan (the "J" one) is worth the rocky trip.

The volcanoes have been extinct for at least a quarter-million years. But before that, probably half a million to a million years ago, the volcanoes played a spectacular role in Albuquerque's geologic history.

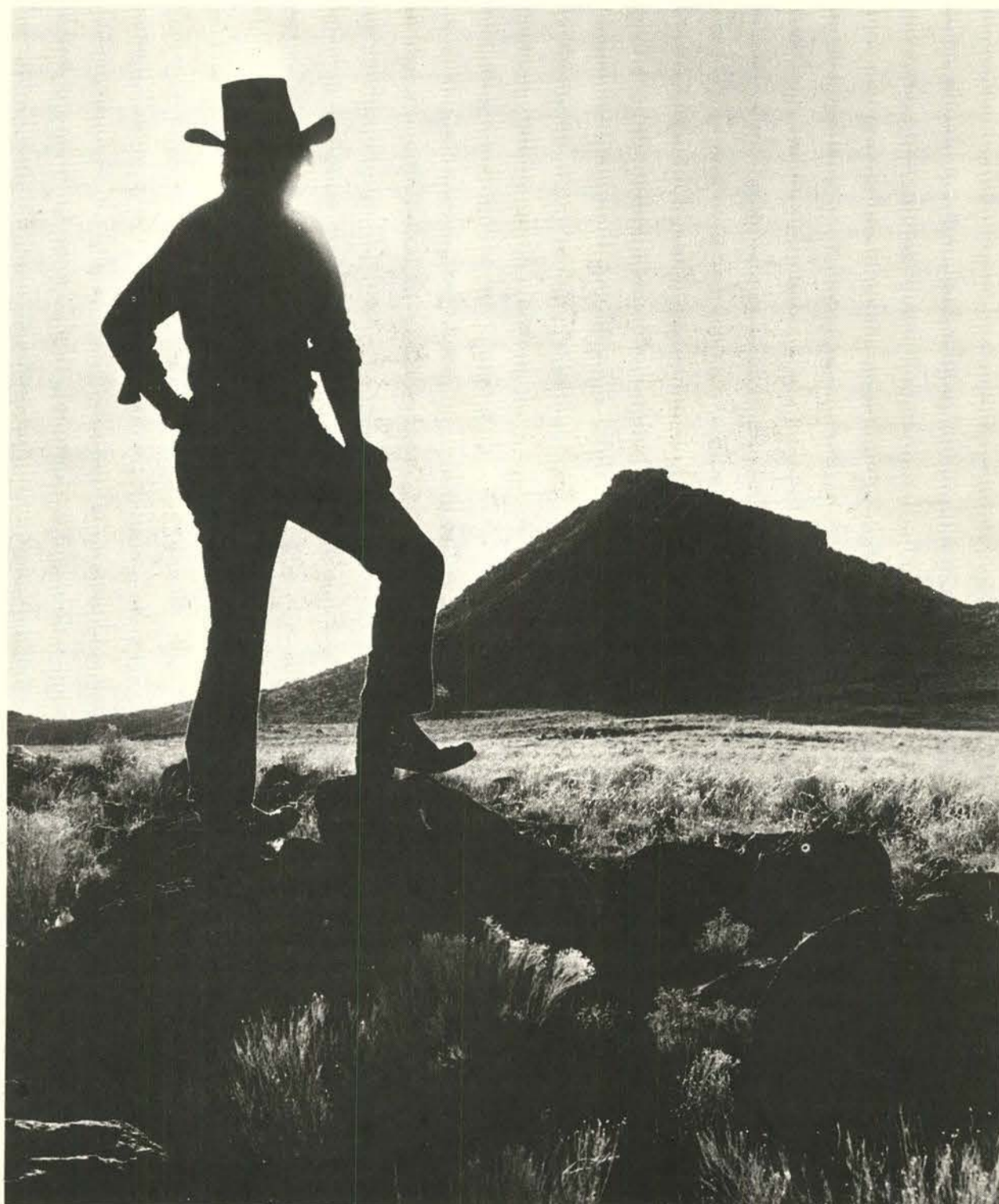
Spectacular, but minor in comparison with that of the mountains and the river. Once, a broad plain sloped gently eastward. Some millions of years ago a massive force from deep within the earth split the plain into two parts along a fault line at the western base of the Sandias. The mountains were wrenched upward much like a loose patio stone when you step on its edge. The tilt of the eastern side is only 15 degrees, which surprises few of us. The slope of the exposed western face ranges from 20 degrees (from Juan Tabo picnic area to Sandia Crest) to 12 degrees (from the west base to South Crest), which surprises many of us who think of the west face as nearly vertical. As a matter of fact, the University Arena bleachers slope 23 degrees.

As the mountains rose, the area we now know as the east mesa and the valley dropped. It dropped a lot — the layers of granite that were once connected to those exposed at the 10,678-foot high rim of the Sandias are now some 20,000 feet below us.

It was once one of the greatest troughs on earth, some 15,000 feet below sea level. It would have been larger and more desolate than the Dead Sea except that about 10,000 feet of the trough filled in with debris. But it was still a trough, and a trough attracts water.

Enter the Rio Grande. Unlike a normal river, it did not cut the trough it runs in. Instead, the river filled up the trough it found here; it accounts for the other 10,000 feet of fill (sand, gravel, mud) that makes up the valley and mesa. And it accounts for Albuquerque's enviable position in regard to water. With an average annual rainfall of only eight inches, the city would have dried up and blown away long ago but for the river — day and night for millennia it has left behind water with the sand and gravel. Today there are thousands of feet of water down there ready for pumping.

Now for the volcanoes. At least 18 can be discerned along the north-south fault line. They all erupted basalt, a kind of lava that comes from 40 to several hundred miles below the earth's surface. Many erupted more than once; geologists find six different major flows, probably occurring within a few months, or even a few days, of each other. Each was spectacular, awesome — fountains of molten lava spewing



VULCAN VOLCANO, lava rocks, and observer. The city now owns all five volcanoes.

into the air and plopping back to earth, more viscous lava oozing from the fissures, globs of fiery splatter cooling into cindery deposits, and explosions (two of the volcanoes were split apart during their final eruptions). Earthquakes probably accompanied the eruptions — all in all, it was a helluva fireworks show.

The lava flowed eastward down the slope toward the slowly filling trough. We don't know how far east because eventually (over 50,000 to 100,000 years) the river completed its accretion and wandered along a wide plain. Its west side was the lava flow, its east the International Airport mesa. So the river most certainly eroded away some or much of the original lava flow. The plain was nearly flat too — there was no valley as we know it today. In fact, at one time the river was meandering along some 250 feet *above* the present downtown area. During floodstage, it could have made sand and mud deposits on, if not in, the 284-foot Western Bank building.

Whether we are aware of it or not, the way we live depends on these and other natural events and features. The mountains help to shape our climate; they

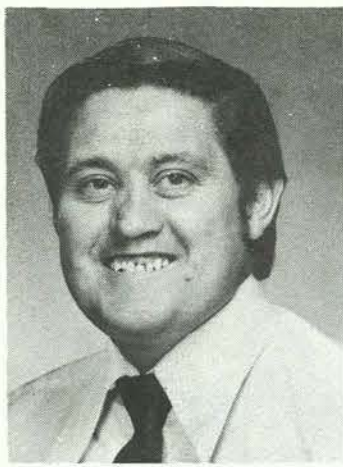
provide picture-window vistas and outdoor recreation. The river continues to be a water provider. East Central Avenue runs along what was once Tijeras Arroyo to Carlisle where Campus Boulevard takes over its path toward the river. The homes in the Constitution-Washington area and along Ridgecrest are built on the north and south banks of that arroyo. Downtown is in a yazoo (a low area along a river) several feet lower than the riverbed. (Just one or two thousand years ago, the river flowed between Second and Twelfth Streets; the new channel created levees which raised it to its current height.) The diversion channels keep much of the water from the mesa and mountains out of the yazoo; it's hard getting it out of there. And the various ditches and dams on the mesa are designed to keep 15-ton boulders (like those along Juan Tabo north of Comanche) from crashing out of Embudito Canyon during the next cloudburst.

So far, the volcanoes haven't affected us much — late as we were for their big show. But now that they are ours, perhaps more of us will recognize their picture-window potential too. •bh

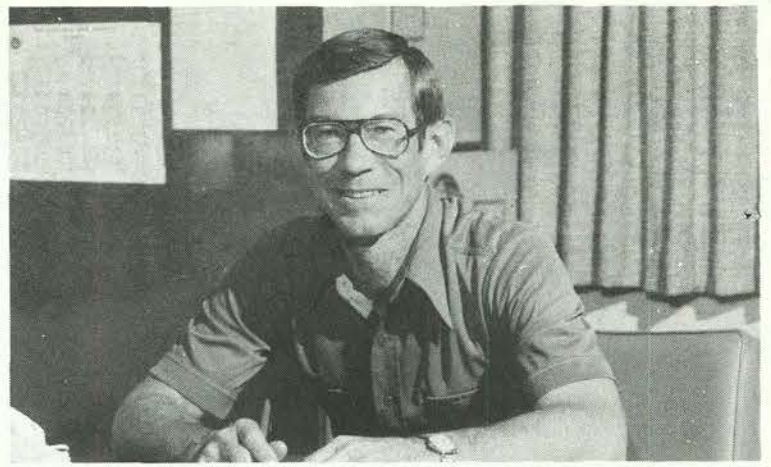
MILEPOSTS

LAB NEWS

NOVEMBER 1976



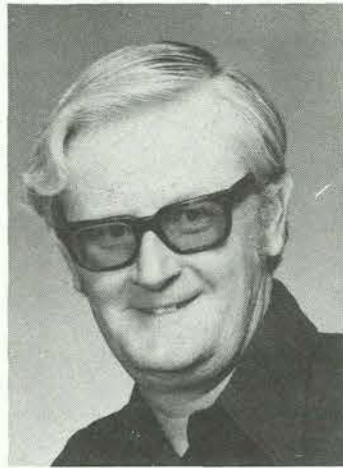
Samuel Sena - 2632 10



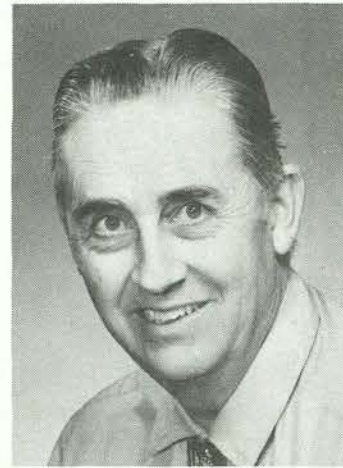
Joe Magruder - 1135 20



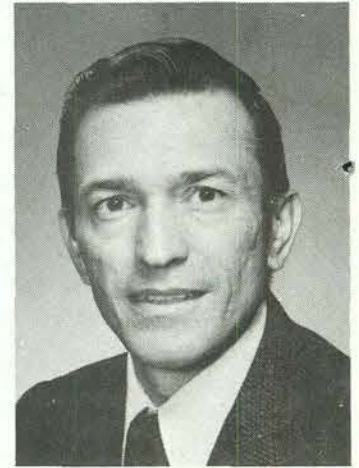
Lilith Baker - 1135 15



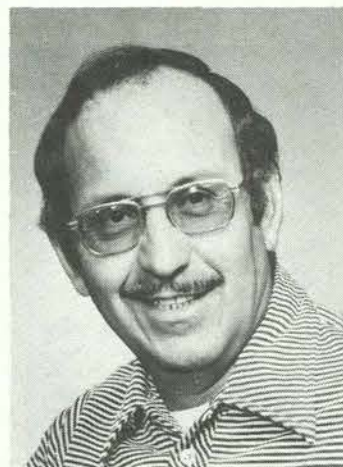
John Melvin - 1241 20



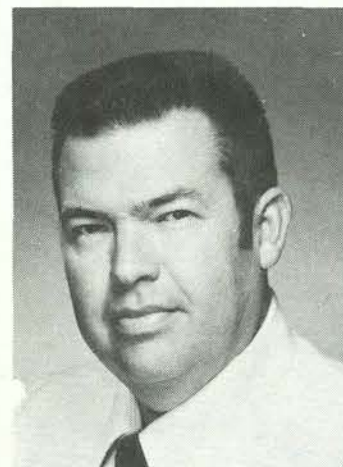
Grady Raybon - 5232 25



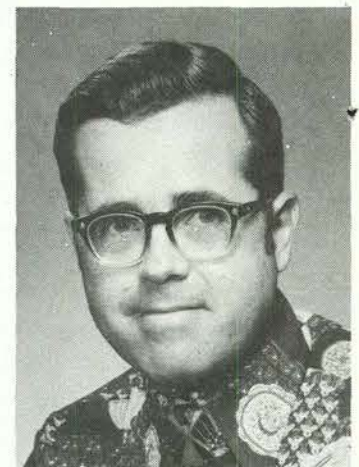
James Lang - 4336 25



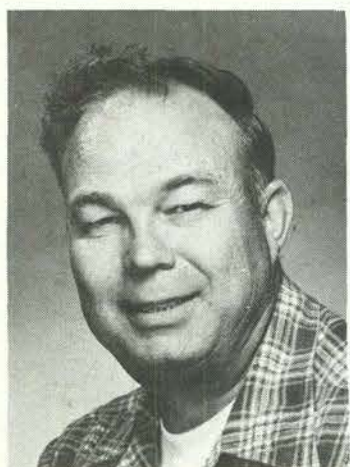
Adolfo Maes - 4232 20



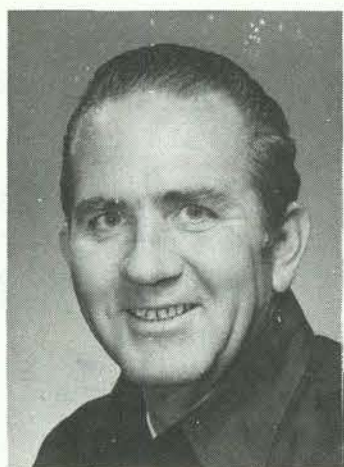
Raymond Fry - 9634 20



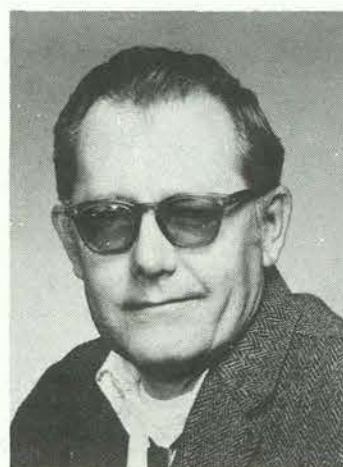
Thomas Howard - 2125 15



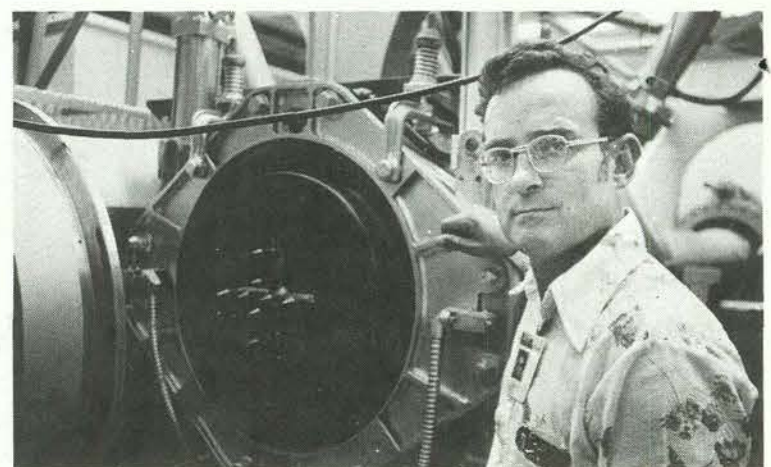
John Gunby - 9712 20



Clifton Kinabrew - 1116 20



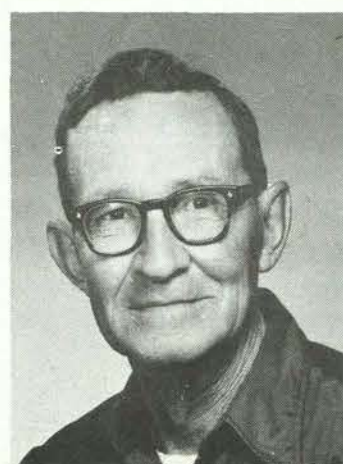
Cecil Sonnier - 1751 20



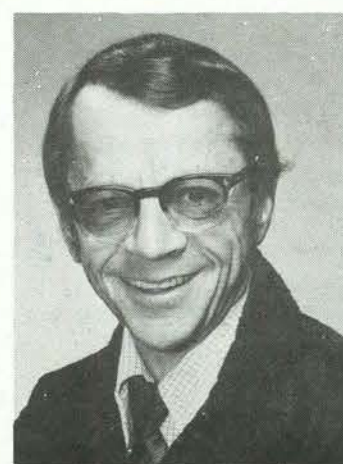
Jim Reed - 1334 25



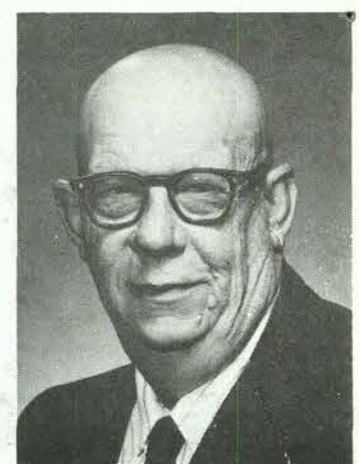
Al Jiron - 9711 25



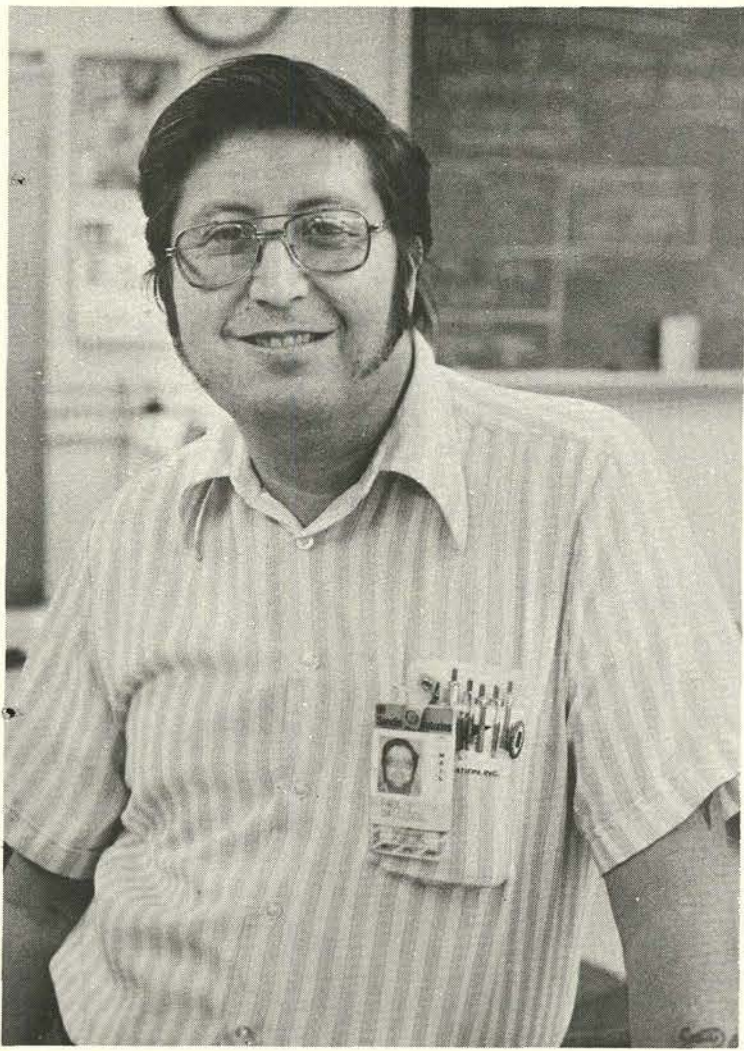
William Thompson - 9335 20



Lawrence Johnson - 4323 20

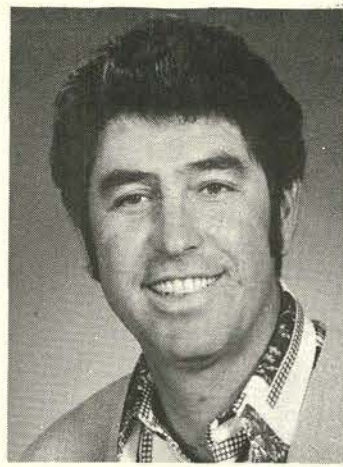


Cecil Tolbert - 1334 25



Paul Gallegos - 3171

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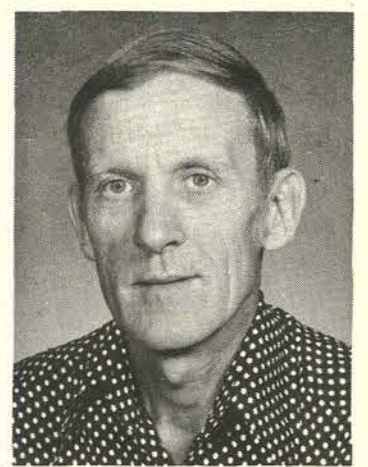
Abel Lucero - 3412

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Mac Weaver - 9743

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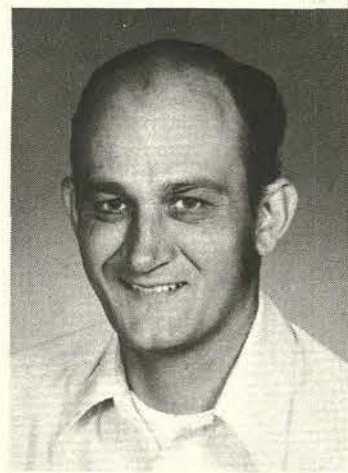
James Volkman - 9655

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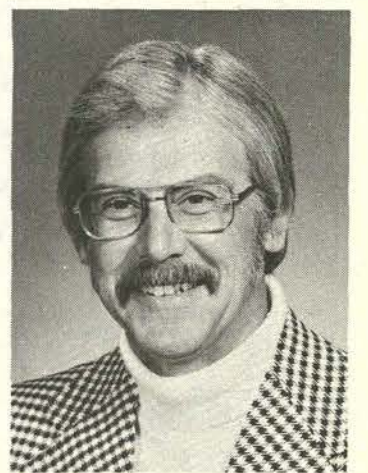
Delmar Dufty - 3644

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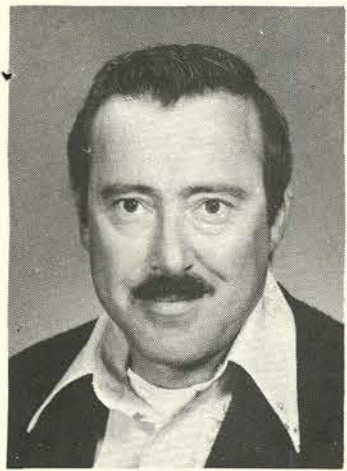
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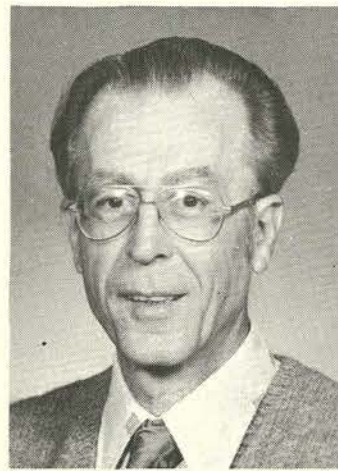
Don Rost - 3442

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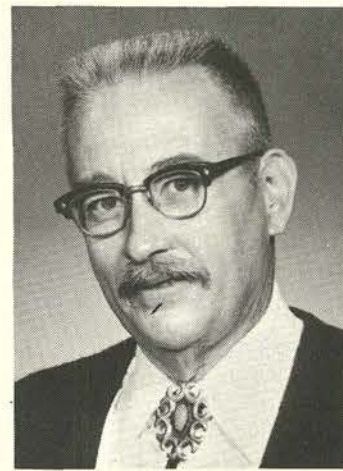
John Sanchez - 3171

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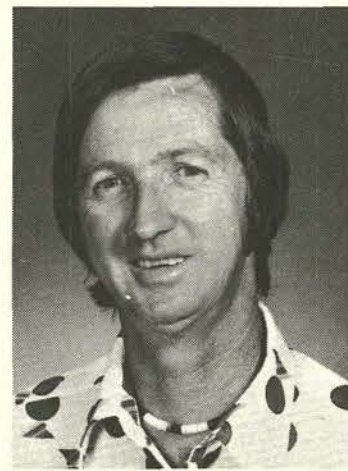
Daniel Alvino - 9634

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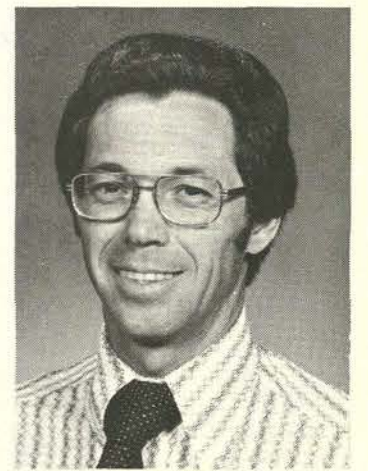
Bob Harner - 9512

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James Tichenor - 2521

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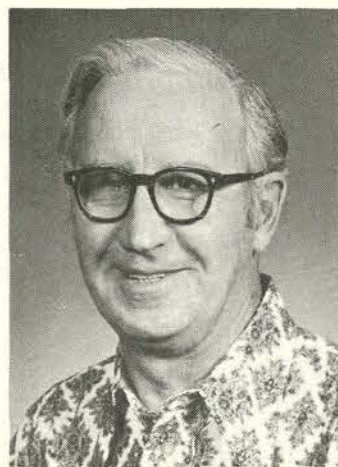
Johnny Biffle - 1281

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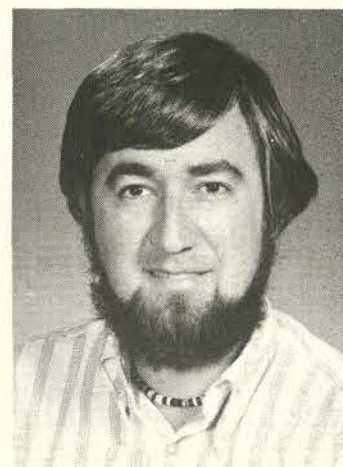
Frank Hensley - 9412

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Earl Sherwood - 2325

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Richard Kromer - 1734

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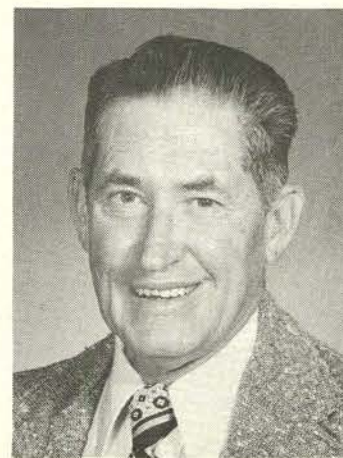
Gerry Hinman - 3621

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Carol Patterson - 5120

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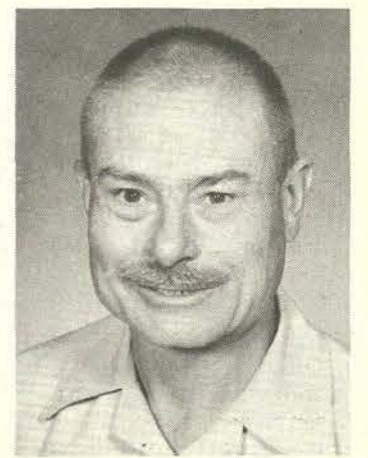
Roger McKenzie - 2120

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Elfie Salazar - 3727

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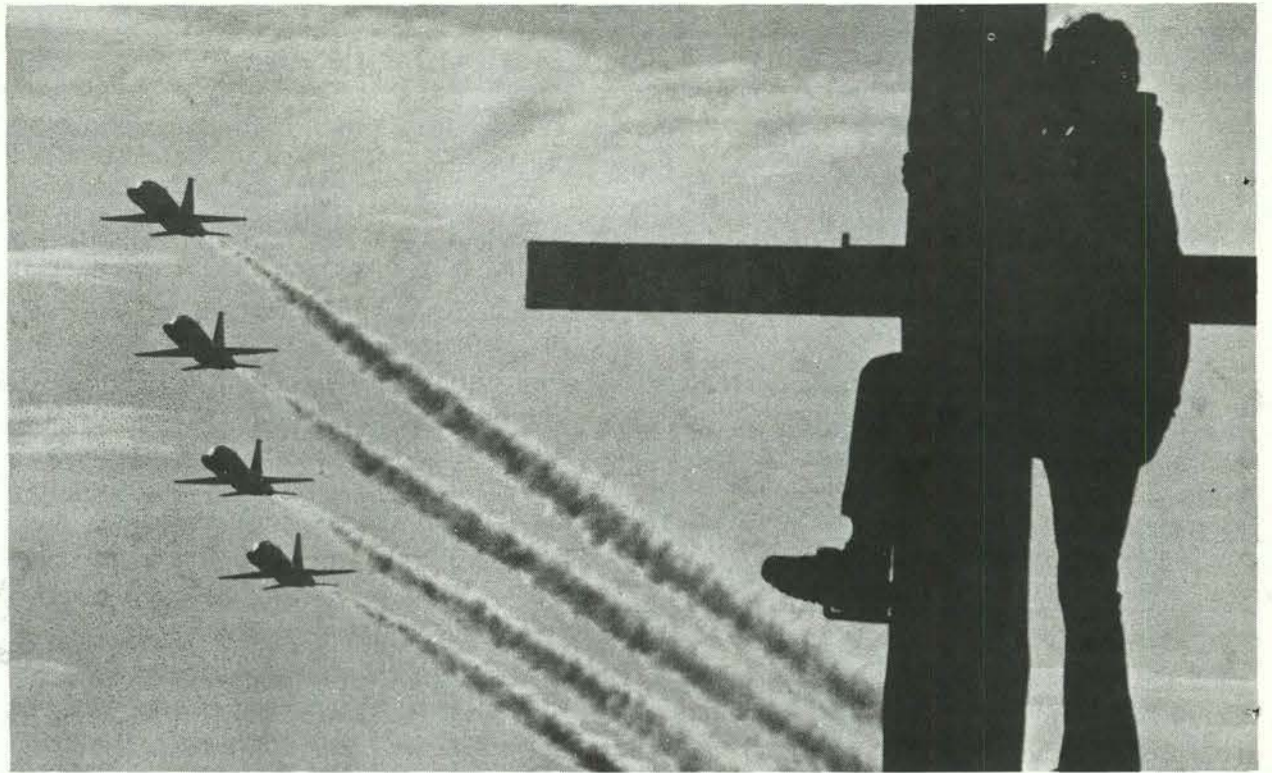
Jim Allensworth - 5742

25

Congratulations

To Mr. and Mrs. Don Schroeder (2542),
a son, Eric Alan, Nov. 15.

PAGE ELEVEN
LAB NEWS
NOVEMBER 26, 1976



LAB NEWS photographer, Bill Laskar, a confessed airplane nut, persuaded the Air Force's Thunderbirds to fly low and slow past this utility pole for a picture, and then this character had to plunk himself right in the middle of things. Nice try, Bill.

commuting
information
DIAL 4-RIDE



JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

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Deadline: Friday noon prior to week of publication unless changed by holiday.

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Must be submitted in writing.
4. Use home telephone numbers.
5. For Sandia Laboratories and ERDA employees only.
6. No commercial ads, please.
7. Include name and organization.
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

- OSCILLOSCOPE, Heathkit 012, \$15; cycle helmet, \$10; movie screen, \$25; baby swing, \$10; carseat, \$15; walker, \$5; back pack, \$7. Falacy, 881-1802.
- TV GAME Odyssey 200, eleven action games and three shooting gallery games, used 6 mo., cost \$120, sell \$50. Holmes, 292-0898.
- GIRL'S BICYCLE; matching walnut living room tables; mahogany phono cabinet; misc. items. Walter, 293-5020.
- 5 PC. DINETTE, \$40; GE floor scrubber, \$8; metal bed frames, \$5 ea.; Penney's twin box springs, \$12 ea. O'Connell, 255-6575.
- CLASSICAL GUITAR, Yamaha six string, model G-55A, 1 year old, \$85. Maurer, 292-1080.
- HOUSEHOLD FURNITURE, living room set; chairs; bedroom set; etc. Fenimore, 298-8052.
- 4 CHANNEL PIONEER QL-600A amp with VU meters; SA-600 main amp; TX-600 tuner, European specs., \$400 for set. Conrad, 881-2316 or 299-5316.
- SLIDE FILES, metal, eleven, each holds 150 glass mounted or 300 cardboard mounted 2"x2" slides, \$14. Knox, 255-3145.
- SEWING MACHINE, Sears Zig-Zag, \$50; rollabed, \$30. Stephens, 265-5341.
- TONNEAU COVER for Ford Ranchero pickup, white fiberglass, mountings and key locks, \$145. Lewis, 296-7896.
- '70 TENT TRAILER, sleeps 8, ice box, stove, sink, furnace, brakes, 13" tires, 10.10 oz. canvas, self-lube nylon zippers. Beller, 881-4047.

- STEEL FRAME WINDOWS, 29" x 40", one \$10, three \$25; fish tank, 10 fish, pump, heater, stand, \$12. Porter, 299-5480.
- EXERCYCLE, Sears, \$35. Zanner, 281-5570.
- TWIN BEDS, box springs, mattress, no headboards, metal frame, \$50 ea. Cantwell, 299-7373.
- 42" KITCHEN TABLE, round, 4 swivel bucket chairs, \$100; smoke grey hanging lamp, \$20. Shane, 296-4430.
- FOUR TIRES, General "Bias Jumbo 780", P 155X13, \$55. Groll, 898-0641.
- LAMP TABLE, mahogany finish, 24" square. Williams, 255-9652.
- SYRACUSE CHINA, "Governor Clinton," 5 pc. place setting, \$15; Martin clarinet, case, accessories, books for beginner, \$75, make offer. Spatz, 299-0410.
- TWIN BED, extra long; ping pong table; 9x13 umbrella tent; D78-14 snow tire; 24" girl's bike. Mikkelsen, 881-3921.
- MARLETTE MOBILE HOME, 12x65, 2 bdr., wsh/dr., china cabinet, carpeting, covered patio, set up. \$7250. England, 898-2045, 299-7849.
- QUILTS, hand-stitched, dacron filled, pieced, embroidered, applique or solid, \$75. Eversgerd, 265-2303.
- SNOW TIRES, B78-13, two studied, two regular, all for \$30. Kidd, 256-1020.
- WINCH, TV-I made, ratio 10-1, powered by Ford starter; chrome rear bumper for Chevy pickup, '70-'76. Padilla, 873-0667.
- PENTAX TAKUMAR LENSES, 35mm, f3.5 auto, 135mm f3.5 auto., both for \$175; 7x50 binoculars, \$35. Kramer, 898-7149.
- TIRES, 4 ea. 9.50X16.5 truck tires, 10PR, 1 almost new, rest recappable, \$25. Caskey, 298-1146.
- RECLINER CHAIRS, two, \$25 ea., single bed, Simmons mattress, box spring, \$20; Heathkit metal detector, manual, case, battery, \$125. Mead, 299-2396.
- PIANO ACCORDION, Frontalini, 120 bass, bass and melody shift, 5 instrumental shifts, pearl

keys, leather case. Stuart, 265-7315.

AFGHAN HOUNDS, 2 ea., females, 3 and 4 yrs., old. Martinez, 344-9455.

8X14 TARPULIN, \$25. Horton, 298-4449.

STUDIO TAPE RECORDER, Ampex, model 300, stereo 1/2 track, 30 rolls of 10 1/2" reel tape, \$425. Allen, 299-9075.

AIR CONDITIONER, Wards model UF05715, approx. 6000 btu, \$200; Royce model 1-612 CB radio, \$175. Grahek, 293-3710 after 5.

JOINTER-PLANER, Craftsman 4", with stand, \$100; 9"x30" bench wood lathe, \$60, both without motors. Elder, 265-2386.

AIR COMPRESSOR, 1/2 hp, hose, spray gun. Ambrose, 266-9153.

GAS DRYER, \$100 or trade for electric. Samuelson, 821-7971.

GOLF CLUBS, graphite shafted woods (1, 3, 4), Northwestern, \$75 or best offer. Adams, 881-6836 after 5.

GOODYEAR "Custom Power Cushion" G78-15 polyglass belted, new, cost \$59, sell \$35. Williams, 299-9150.

RUGS, 9x10 ivory shag, 9 1/2x12 beige shag, both by Karastan, \$40 ea. Smith, 242-9576.

GARAGE SALE, educational materials, furniture, books, etc., 9-5, 3500 Smith Cir. SE., Nov. 21, 27, 28. Herrera, 247-9094.

PLATFORM ROCKER, \$75; 32" door, \$10; patio door and rod, \$15; white coat, size 14, \$50; 2 gal. paint, \$10. Aragon, 294-0225.

CALF, ready to butcher, grain fed, 50#/lb., approx. 700 lbs. Morrison, 877-7425.

DINING ROOM SET; stereo, coffee table, end table, Strata recliner. Ray, 298-4055.

FLEXSTEEL CHAIR, blue, slip-covered, needs re-upholstering, \$25. Guilford, 255-6294.

PORTABLE DISHWASHER, Whirlpool, \$75; rectangular braided 8x5 1/2 burnt orange rug, \$15. Watterberg, 294-6759.

877-4497.
PORTABLE DISHWASHER, GE, \$50. Dosch, 299-2557.

RADIAL SAW, Craftsman, stand, extra blades, other accessories, \$200; Ariel electric bass guitar, case, \$120. Predika, 836-6108, 836-5804.

CB RADIO base station, Midland 13-873, single sideband, 23 channels, with antenna, \$200. McDonald, 265-2842 evenings.

TRANSPORTATION

JET BOAT and custom trailer, Taylor SS, 18 ft., 460 cu. in. Ford Marine V-8, \$6800. 3018 Conchas NE, Jones, 294-5515.

'76 FORD 3/4-ton 4-wheel drive, PS, PB, AT, 360, 9,000 miles, take over payments; 8 ft. camper, jacks, ice box, sleeps 4. Hullinger, 864-6339 after 6.

'63 FALCON SW for parts, \$50; 13' flatbed trailer, \$150; sportsman race car, \$200. Lanoue, 877-7902.

'73 INTERNATIONAL TRAVELALL, 1010 series, PS, PB, AC, extras, below book. Simons, 881-3298.

'64 HONDA S600cc DOHC engine, broken crank, two-seat convertible, make offer. Moss, 299-6573.

'74 COMET, 4-dr., 21,000 miles, AT, AC, \$100 under book. Bailey, 298-0517.

'66 CHEVY Carryall Suburban, 4-spd., radio, 5-passenger; 24" girl's Schwinn bicycle. Kroth, 293-9565.

'75 HONDA CB550K, 4700 miles, Windjammer III fairing, luggage rack, sissy bar, \$1500. Roginski, 296-6535.

'72 SUZUKI 380 GT, windshield, luggage rack, saddle bags, \$450. Baca, 293-1375.

'71 MAVERICK, AT, PS, 48,000 miles, book value \$1500, priced firm at \$1250. Miller, 255-1324.

'71 YAMAHA 175 Enduro, 4,000 miles, \$350 or best offer. McGovern, 293-9448.

'72 PONTIAC Ventura II, 4-dr., PS, AC, needs grille and tires, book \$1800, sell for \$1300. Wehrle, 255-4667.

6 cyl., AC, AT, PS, radial tires, 53,000 miles, hitch receiver, \$3600. Lauson, 298-2769.

'73 HONDA CB 1975, 7500 miles, \$410. Fowler, 299-6102.

WANTED

TO CAR POOL from 12500 Towner NE. (Towner & Tramway). Dunn, 4-2538.

USED GAME TABLE; folding ping pong table. Rudolph, 298-0941.

22 CALIBER RIFLE, preferably with scope. Bouton, 898-3562.

FREEZER, not frostless. Baxter, 344-7601.

TREAD MILL (running board). Stilwell, 266-3928 after 5.

ERECTOR SET, any size. Zanner, 281-5570.

GOOD SLR CAMERA. Souder, 281-3121.

OWNER'S MANUAL for '72 Pinto and '66 Ford 3/4-ton pickup. Nelson, 881-0148.

SHOPSMITH MARK V. Yates, 299-7117.

REAL ESTATE

3 BDR. HOUSE, NE., 1 1/4 baths, AC, sprinklers, carpeted, paneled den, WB fireplace, covered patio, 2-car garage, attic, 6.5% loan. Mead, 299-2396.

MOUNTAIN PROPERTY, corner lot on north 14, over 1/2 acre overlooking Sandias, \$4000 firm. Proulx, 5440 Surrey St., Las Vegas, NV 89119.

FOR RENT

2 BDR. APARTMENT, unfurnished, adults only, no pets, fully carpeted, dishwasher, private utility room. Smith, 296-8519.

CONDOMINIUM, Purgatory ski basin, sleeps six, linens, fully equipped kitchen, fireplace, reservations. Smatana, 299-6278.

LOST & FOUND

LOST — Navy & red plaid scarf; dark green lightweight cotton jacket; silver Hopi pin; turquoise drop earring; red wool & silk man's scarf; gold purse.

FOUND — Black-rimmed Rx glasses in black case. LOST & FOUND, Bldg. 832, 4-1657.

FRIDAY	SATURDAY
26—HAPPY HOUR NO BUFFET Lobo Bus - 6:55	27—TEEN DANCE 7:30 - 10:30 GHOST ROSE Mbrs 50¢ Guests \$1 Lobo Bus - 6:55
3—HAPPY HOUR POT ROAST BUFFET Adults \$3.25 Under 12 1.92 Jack Douthett BROWN SUGAR Singles Night	4—SANADO BALL Enchanted Christmas SCOTSMEN QUINTET Lobo Bus - 6:55

BEWARE — of waiting till the 4th to pick up your tickets for the Christmas Super Buffet on Saturday, the 11th. There just might not be any left. And you'd be left without a chance at carved round of beef, baked ham, lobster thermidor, and all the varied vegetal trimmings. You'd miss *Sol Chavez* too — we thought it would be appropriate to have old Sol(stice) with us in December. Tickets — only \$4.50 (guests \$5).

OF — course the Lobo Buses will run for every home basketball game. Be there before 6:55 or you'll run too — to catch one. Get a ticket (50¢) before the game or games you plan to see. Celebrate Lobo wins (or, heaven forbid, mourn the losses) at Fifth Quarter at the Club after each game. On the 26th, the special drink is a Highlander, on the 27th a Buffalo Bluff, on the 29th a Slavic Tonic, and on the 4th a Rangerette.

THOSE — of you who are single are invited to the El Dorado Room after work on Dec. 3. Those of you who aren't are asked to send single Club and non-Club members to join the party. Happy Hour bar, Linda Beattie strumming, general conviviality, major discussions (with a colonel of levity), private affairs, but nothing corporal. Fifty cents at the El

Dorado Room door, admission waived at the main entrance.

WHO — out there assumes that pot roast is the entree counterpart of Alice B. Toklas brownies? Wrong. It's an old-fashioned, down-home way to fix roast beef that will make your mouth water. (Once your mouth is water, of course, eating becomes rather awkward.) Complementing the buffet will be a classical, a flamenco, and a contemporary guitarist — all of them named Jack Douthett. Then dance, prance, or romance to *Brown Sugar*. It's all at Happy Hour on the 3rd.

SAY — there, Sanadoes, it sounds like it's a real ball you're planning for the 4th. It's titled "Enchanted Christmas," and the release we have mentions "good food and great-looking women, a beautiful and romantic atmosphere, dreamy music, and a glamorous new dress." The buffet features roast beef and baked ham. The music is by the *Scotsmen Quintet*, a genuine unamplified band! Make reservations by the 30th with Vicky Clark.

THEY'RE — already taking reservations for the Specialest Special Of Them All, the New Year's Eve Gala on (you guessed it) the 31st. Two bands, each quite capable of teaching you the true meaning of "wring out the old, ring in the new," will play upstairs (*The Vikings*) and down (*Charlie B*). Free champagne and an early morning breakfast too. All for \$10 per member couple, \$13.50 per guest couple, \$6 per single member, \$7.50 per single guest. Pick up tickets by Dec. 18.

ON — the 27th (that's tomorrow), one of the teen crowd's favorite bands, *Ghost Rose*, rises to the occasion. Parents, get tickets before or at the door.

YOUR — average Happy Hour it's not. Tonight, no buffet and no music, but who

HOT FLASH — A week in Rio de Janeiro for \$669 (\$758 single)! April 23-May 1. RT air, 7 nights at the new Rio Othon Palace Hotel on Copacabana Beach, private bath, all breakfasts, transfers, tips, and more. Members and guests. Details later.

wants to eat or dance on the day after Thanksgiving anyway?

SIDE — benefit of the recent Club trip to Greece: a post-Greek-trip slide show to which we're all invited. Should be a great Travelogue Night — 7:30 on the 8th.

SO'S — the Holy Land tour package — great. The pre-trip meeting is at 7:30 on the 7th.

APPENDICITIS — traction, terminal halitosis: these are about the only reasons that Ski Clubbers *shouldn't* show up for the big Christmas party on the 14th. Reasons they *should* show: a whole bunch of fantastic door prizes (including a weekend for two at Tamaron and Purgatory), *Up Country*, chips, dips, Happy Hour bar. Make reservations with Luke Stravasnik by the 10th.

MORE INFO — 265-6791

feed 'n' back

Q. The heating and cooling needs of Bldg. 880 are being needlessly increased by the practice of leaving outside doors open. Suggest some signs on those doors stating they should remain closed.

A. We surveyed building 880 recently and found nine of the eleven building entrances with outside and/or interior air lock doors open. One was open due to construction activity. We also checked door operation and found that all were operable, but that some adjustments of door closers, weather stripping, and hinges are required.

Plant Engineering is making the door repairs and removing the hold-open devices now mounted on the doors. Both of these measures should encourage keeping the doors closed. Signs will also be placed on the doors. Energy monitors in the building will be instructed to check for open doors, and the transportation and maintenance organizations have been instructed not to leave doors open except when actually in use.

If these steps prove successful in Bldg. 880, they will be employed in other major buildings.

R.E. Hopper - 9700

Q. Word is that each employee will receive a copy of his or her personnel record to check for accuracy and com-

pleteness as to schooling, etc. Regarding schooling, what about people who have signed up in the past for Sandia Out-Of-Hours courses taken here and did not complete them, yet have them on their record as being completed?

A. It is correct that we plan to distribute to each employee his or her personnel record for review within the next few months. With regard to your question on education, it's possible, but not likely, that a person would get credit on his personnel record for an out-of-hours course that he did not complete. The procedure used for the past 10 years in recording out-of-hours course completions calls for course completions submitted by the instructor to be entered on the computer. At this time, the E-number is checked against the last name to assure that the proper person receives credit for the course. The computer then processes microfilm (profile sheets) to the personnel file for the personnel record.

There are a number of other checks to make sure that the employee completing a course is the employee who gets credit for the course. In any event, if anyone has knowledge that this is not the case, the Education and Training Division 4231 would like to know about it so that corrective action can be taken.

R.J. Edelman - 4200

